Mapping Financial Inclusivity: A Comprehensive Study of Financial Inclusion at the District Level in Jharkhand.

Proposed Synopsis for the research study

for the degree of Doctor of Philosophy in Economics.

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1.1 STATE OF THE ART AND PROBLEMS TO BE INVESTIGATED

1.1.a FINANCIAL INCLUSION – THE NEED OF THE HOUR

As India charts its course toward becoming a formidable economic force in the coming years, the extent to which inclusive growth is realized will significantly shape the average prosperity of its people and the equitable distribution of wealth. In order to foster inclusive growth, it is imperative to ensure financial inclusion, wherein a diverse range of suitable financial services is made accessible to each individual, accompanied by a clear understanding and utilization of these services. This encompasses the provision of basic, no-frills banking accounts for seamless payments, savings products tailored to the financial dynamics of less affluent households, efficient money transfer facilities, small-scale loans, overdraft options, and insurance coverage.

In 2008, Dr. C Rangarajan[1], leading a committee on financial inclusion, articulated the concept as follows: “Financial inclusion is the process of ensuring that vulnerable groups, including weaker sections and low-income groups, have access to financial services and receive timely and adequate credit at an affordable cost.” Similarly, echoing this sentiment, Dr. Raghuram Rajan's committee[2] on financial sector reforms provided its definition, stating that financial inclusion involves "expanding access to financial services, including payment services, savings products, insurance products, and inflation-protected pensions." Additionally, CRISIL[3], in its definition, emphasizes the broad scope of financial inclusion, describing it as "the extent of access by all sections of society to formal financial services such as credit, deposit, insurance, and pension services."

Financial inclusion, in its widest scope, involves making financial services accessible at affordable rates for all demographics, including those in the disadvantaged and low- income groups. Measuring the financial inclusion is critical and this is accomplished through the development and utilization of a specific metric known as the financial inclusion index.

A financial inclusion index is defined as; “a multi- dimensional index that captures information on various dimensions of financial inclusion in a single digit lying between 0 and 1, where 0 denotes complete financial exclusion and 1 indicates complete financial inclusion.”

DETERMINANTS OF FINANCIAL INCLUSION:

Financial inclusion, which refers to the accessibility and affordability of financial services for both individuals and businesses, is influenced by a multitude of factors. The determinants of financial inclusion include the following factors:

1. Income Levels: Typically, higher income levels are associated with better access to financial services.
2. Education and Literacy: The level of financial literacy and education plays a crucial role in individuals' ability to comprehend and effectively utilize financial services.

3. Infrastructure: The availability of banking infrastructure, including branches, ATMs, and internet connectivity, directly impacts accessibility.
4. Regulatory Environment: Effective regulations are instrumental in promoting financial inclusion by ensuring consumer protection and fostering innovation within the financial sector.
5. Technology: Advancements in technology, such as mobile banking and digital payment solutions, have the potential to greatly enhance access to financial services, particularly in remote areas.
6. Social and Cultural Factors: Norms, attitudes, and cultural practices significantly influence individuals' willingness to engage with formal financial services.
7. Gender: Gender disparities often create barriers for women in accessing and controlling financial resources, thereby impacting financial inclusion.
8. Geography: Rural or urban location can significantly affect access to financial services, with rural areas typically having fewer banking facilities.
9. Economic Stability: A stable economy and financial system foster confidence in financial services and encourage broader participation.
10. Government Policies: Initiatives and policies implemented by governments, such as subsidies or microfinance programs, play a pivotal role in promoting financial inclusion.

Additionally, trust and confidence in financial institutions play a pivotal role in shaping individuals' willingness to engage with formal financial systems. Transaction costs, documentation requirements, and language accessibility further influence accessibility, alongside individuals' financial capabilities and formal employment opportunities. Informal financial practices, the stability and inclusivity of financial institutions, and broader economic factors, both global and regional, also significantly impact financial inclusion efforts at various levels of society. These factors collectively shape the landscape of financial inclusion and highlight the complex interplay of socioeconomic, cultural, and regulatory elements influencing access to financial services.

HOW IS FINANCIAL INCLUSION MEASURED IN INDIA?

The extent of financial inclusion in India is assessed through various perspectives and data sources, providing a comprehensive understanding of its extent and dynamics.

The measurement of financial inclusion through a Financial Inclusion Index stands out as the most comprehensive tool among them. It offers a holistic assessment by amalgamating various indicators, providing a nuanced understanding of financial inclusion across diverse regions and demographics. These indices are prepared by various financial institutions such as Reserve Bank of India, NABARD, CRISIL (till 2016) etc using a comprehensive list of indicators or variables affecting financial inclusion. Different Variables are given different weightage on the basis of their significance towards the financial inclusion. The index captures information on various

aspects of financial inclusion in a single value ranging between 0 and 100, where 0 represents complete financial exclusion and 100 indicates full financial inclusion.

Some of the other ways to measure the extent of financial inclusion in India are as follows:

- The Government of India Population Census

According to the population Census 2011, approximately 58.7% of households were utilizing banking services nationwide. This figure represents a notable increase from the previous census in 2001, largely attributed to expanded banking services in rural areas.

- IMF 'Financial Access Survey' Results

Data from the International Monetary Fund's Financial Access Survey provides international comparisons and benchmarks for assessing financial inclusion efforts in India.

- NSS Round Survey Results

Surveys conducted by the National Sample Survey provide detailed information on household characteristics, income, expenditure patterns and access to financial services.

- NABARD All India Rural Financial Inclusion Survey 2016-17

Conducted by the National Bank for Agriculture and Rural Development, this survey offered insights into the status of financial inclusion in rural areas, focusing on agriculture and rural development.

- RBI reports **:**

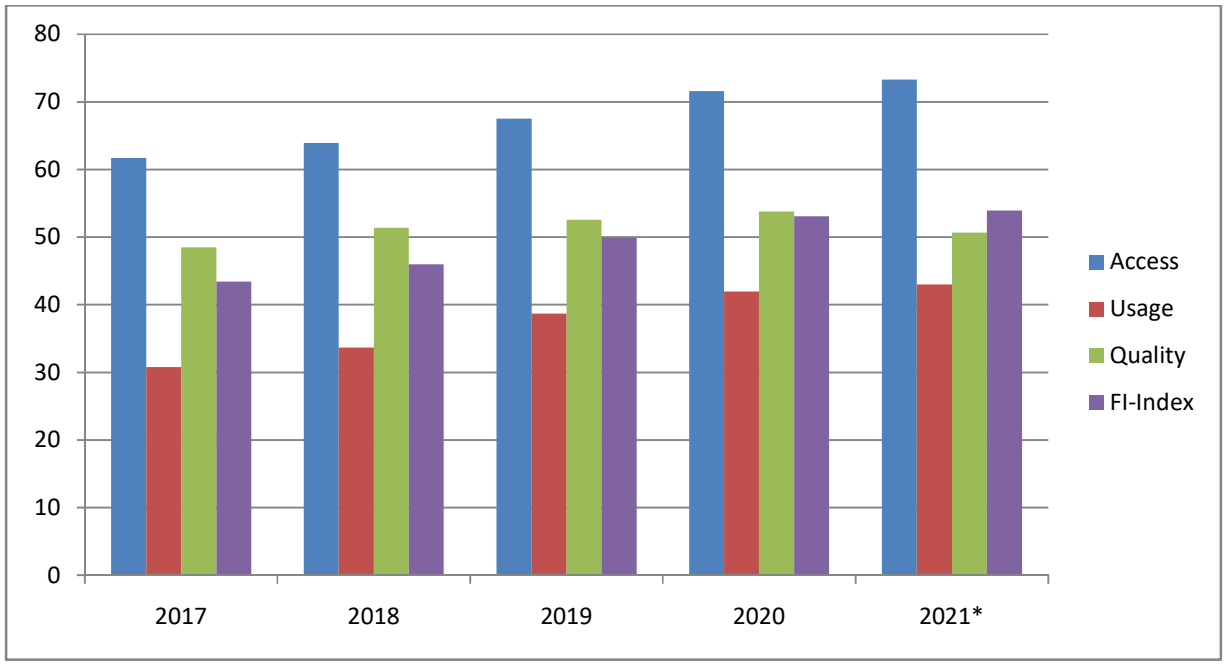
The Reserve Bank of India (RBI) publishes reports and data on various aspects of financial inclusion, including banking outreach, digital payments, and progress in implementing government schemes.

1.1.b AN OVERVIEW OF FINANCIAL INCLUSION ACROSS INDIAN STATES

In India, initial efforts to promote financial access included the encouragement of cooperatives, bank nationalization, and lead bank schemes. Formal recognition of financial inclusion emerged with its inclusion in the 2008 Rangarajan Committee[1]. To address the rural-urban disparity and cater to vulnerable populations in rural areas, the traditional banking infrastructure was expanded to cover the unbanked within the formal financial system. The Business Correspondent (BC) Model, coupled with advancements in low-cost biometric applications and core banking solutions, played a crucial role in extending financial services to the unbanked. Since 2010, the Reserve Bank of India (RBI) has underscored financial inclusion plans for both public and private banks, introducing initiatives such as simplified KYC norms and streamlined branch authorization policies. Over the past fifteen years, the Indian banking and financial sector has undergone a technological revolution, leveraging alternatives such as Direct Benefit Transfers (DBTs) to serve a substantial portion of the population. Since 2015, the introduction of

differentiated banks, payments banks, and small finance banks has facilitated tailored deposit products for diverse demographics including farmers, low-income households, and small businesses. Innovations ranging from mobile banking to mobile money and novel payment methods have further expanded financial accessibility and convenience.

Figure 1: Trends in Scores of RBI's Financial Inclusion Index (2017 -21)



SOURCE -RBI

Various researchers have also calculated the Financial Inclusion Index at state level using different dimensions. Based on that, states are categorized broadly into three categories viz.,

1. $0.5 < IFI < 1$ – High Financial Inclusion
2. $0.3 < IFI < 0.5$ – Medium Financial Inclusion
3. $0 < IFI < 0.3$ – Low Financial Inclusion

In a study conducted to measure the financial inclusion of Indian States by Ambarkhane, Singh and Venkataramani(2016)[4] uses an index prepared by Ambarkhane, Singh and Venkataramani (2014)[5]. The study takes into account demand side and supply side dimensions along with infrastructure dimension. It also considers factors that have a negative impact; such as population growth, law and order situation, corruption etc. and calls them Drag factors. The factors of demand side and supply side are categorized as Banks, NBFCs and insurance companies which have various sub-components too.

As per the table 1, states like Kerala, Goa and Punjab tops the list with Financial Inclusion Index (FII) as 0.4116, 0.4116 and 0.3345 respectively, while states like Jharkhand, Jammu Kashmir

and Madhya Pradesh are in the bottom of the list with scores such as 0.1352, 0.1235 and 0.1066 respectively.

TABLE - 1: State wise dimensional indices with ranks and Financial Inclusion Index (FII)

State	FII {Rank}	Demand Index {Rank}	Supply Index {Rank}	Infra Index {Rank}
Kerala	0.4116 (1)	0.4676 (5)	0.6155 (2)	0.6263 (2)
Goa	0.4116 (1)	0.5663 (2)	0.6398 (1)	0.6067 (3)
Punjab	0.3345 (3)	0.2188 (12)	0.3699 (4)	0.6798 (1)
Tamil Nadu	0.3279 (4)	0.5216 (4)	0.3858 (3)	0.5233 (5)
West Bengal	0.3100 (5)	0.2860 (9)	0.3640 (5)	0.5227 (6)
Himachal Pradesh	0.2763 (6)	0.5402 (3)	0.2831 (7)	0.4471 (8)
Haryana	0.2616(7)	0.1121 (19)	0.2708 (8)	0.5491 (4)
Uttarakhand	0.2575 (8)	0.2966 (8)	0.3165 (6)	0.3713 (11)
Karnataka	0.2547(9)	0.4255 (6)	0.2706 (9)	0.3845 (10)
Andhra Pradesh	0.2342 (10)	0.6566 (1)	0.2461 (10)	0.3548 (13)
Gujarat	0.2313 (11)	0.1686 (14)	0.1787 (15)	0.5119 (7)
Maharashtra	0.2295 (12)	0.3038 (7)	0.1897(12)	0.4205 (9)
Uttar Pradesh	0.1937 (13)	0.1356 (17)	0.1891 (13)	0.3598 (12)
Odisha	0.1928 (14)	0.2464 (11)	0.2113(11)	0.2799 (15)
Bihar	0.1785(15)	0.1100 (20)	0.1882 (14)	0.3192 (14)
Assam	0.1577 (16)	0.2486 (10)	0.1649(16)	0.2141 (20)
Rajasthan	0.1441 (17)	0.1492 (16)	0.1195(18)	0.2588 (17)
Chattisgarh	0.1416 (18)	0.0421 (21)	0.09601(20)	0.2658 (16)
Jharkhand	0.1352 (19)	0.1541 (15)	0.1263(17)	0.2187 (19)
Jammu- Kashmir	0.1235 (20)	0.1287 (18)	0.0743 (21)	0.2518 (18)
Madhya Pradesh	0.1066 (21)	0.1773 (13)	0.1004 (19)	0.2091 (21)

SOURCE: Ambarkhane, Singh, Venkataramani - Measuring Financial Inclusion of Indian States(2016)

Another study used the following dimensions to compute the financial inclusion index:

1. banking penetration as X1, 2.availability of banking services as X2 and 3.usage of banking services as X3.

TABLE - 2: State-Wise Index of Financial Inclusion.

States	Weighted value of X1	Weighted value of X2	Weighted value of X3	IFI	RANK
Andhra Pradesh	0.337225	0.10166	0.92802	0.262574	13
Arunachal Pradesh	0.152078	0.215697	0.013874	0.073312	27
Assam	0.228832	0.06737	0.132867	0.082421	26
Bihar	0.066473	0.029331	0.095922	0.036829	30
Chattishgarh	0.276382	0.169651	0.432648	0.168789	19
Delhi	1.327168	0.745489	0.926498	0.576119	2
Goa	2.086897	1.994393	0.012427	0.786378	1
Gujarat	0.477419	0.325048	0.566033	0.26288	12
Haryana	0.617494	0.590677	0.604428	0.348189	7
Himachal Pradesh	0.681246	0.785966	0.115876	0.304101	10
Jammu & Kashmir	0.476963	0.37659	0.199156	0.202219	17
Jharkhand	0.235541	0.147827	0.047387	0.082745	25
Karnataka	0.756329	0.489643	0.506014	0.336545	8
Kerala	0.918496	0.647015	0.469109	0.390838	6
MadhyaPradesh	0.300029	0.142003	0.350876	0.152313	22
Maharashtra	0.628233	0.252729	0.798526	0.322619	9
Manipur	0.097178	0	0.100337	0.037941	29
Meghalaya	0.101087	0.223224	0.002955	0.062866	28
Mizoram	0.207701	0.41264	0.146071	0.147223	23
Nagaland	0.000000	0.096356	0.084966	0.034831	31

Odisha	0.350069	0.252578	0.196119	0.153438	21
Punjab	0.768615	0.803536	0.595019	0.4163	4
Rajasthan	0.222435	0.196923	0.728956	0.220584	16
Sikkim	0.439144	0.718376	0	0.222352	15
Tamil Nadu	0.883822	0.40705	1.124501	0.463978	3
Telangana	0.727964	0.395532	0.932565	0.394957	5
Tripura	0.484552	0.243213	0.097326	0.158495	20
Uttarakhand	0.607866	0.663613	0.107117	0.26482	11
Uttar Pradesh	0.299572	0.124139	0.238145	0.127138	24
West Bengal	0.383384	0.130696	0.387314	0.173152	18
All India	0.470860	0.26612	0.619478	0.260567	14

SOURCE: Parijat Dhar and Dr. Nissar A. Barua, Financial Inclusion in India - A State-Wise Analysis, International Journal of Management, 11(10), 2020, pp 816-827. http://iaeme.com/Home/issue/IJM?Volume=11&Issue=10[6] (based on author's own calculations)

From the table 2 given above we can see that states like Goa and Delhi belongs to higher financial inclusion group. States like Tamil Nadu, Punjab, Kerala, Telengana, Haryana, Karnataka, Maharashtra and Himachal Pradesh form the group of medium financial inclusion and the remaining states fall under the category of low financial inclusion. Similar story is reflected in other studies conducted by other researchers. As per the report published by Economic Policy and Research, National Stock Exchange of India Ltd (2020)[7] on State of the Indian States, "Nagaland performed extremely poor with lowest financial inclusion, poor state in agriculture, fiscal health and human development indicators. Among other poor performers, Rajasthan, Manipur, Jharkhand and Assam were laggards in multiple dimensions".

1.1.c POSITION OF JHARKHAND:

Jharkhand finds itself positioned at the lower echelons in the state rankings of financial inclusion. The state wise financial inclusion score is shown in table 3 as published by Economic Policy and Research, National Stock Exchange of India Ltd.[7] Here it is observed that the overall financial inclusion score of Jharkhand is 0.14 while the top performer NCT Delhi has the score of 0.57. It is almost 4 times ahead of where Jharkhand stands in terms of Financial inclusion. This makes Jharkhand a poor performer in several aspects of financial inclusion. Recognizing the significance of understanding the financial landscape in this region, it becomes imperative to conduct a comprehensive study with a specific focus on Jharkhand and its individual districts. Such an examination not only sheds light on the challenges faced but also presents opportunities for improvement. By delving into the nuances of financial inclusion in

Jharkhand, policymakers can glean valuable insights to formulate targeted strategies that address the unique needs of the state, thereby fostering more inclusive and robust financial system

TABLE - 3: STATE WISE FINANCIAL INCLUSION SCORE FOR 2020

States	Beneficiary balance per PMJDY account (in Rs.)	% HHs with bank account under PMJDY	Number of Investor registrations per lakh population (in lakh)	No. Of banking offices per sq km	MFAAUM % of GDP	State-wise mutual fund penetration (Rs. Per capita)	Number of E-Transactions per 1000 population	Number of digital payment transactions through BHIM app, Rupay debit card and USSD per capita	Financial Inclusion Score
NCT Delhi	4,275	23.09	8529	2.51	28	108410	3131	8.39	0.57
Maharashtra	2763	22.05	3215	0.04	44	87440	1209	6.34	0.36
Goa	6090	10.87	3506	0.19	19	93000	2586	5.52	0.34
Haryana	4881	25.97	1472	0.11	14	35530	2944	13.52	0.31
Andhra Pradesh	2157	19.99	1614	0.04	4	5900	28805	18.54	0.29
Uttarakhand	4928	22.99	12216	0.04	3	7260	1945	3.79	0.27
Telangana	1964	26.04	2550	0.05	4	9560	36438	2.16	0.23
West Bengal	3677	37.51	1347	0.09	11	13360	2785	2.76	0.2
Gujarat	3518	22.49	3462	0.04	11	23380	6915	2.27	0.2
Karnataka	2969	22.58	1962	0.05	10	24600	1870	7.08	0.18
Tripura	7609	22.17	501	0.04	2	2230	855	1.2	0.17
Odisha	3529	35.86	914	0.03	4	4210	1576	4.92	0.17
Chattisgarh	2392	51.28	675	0.02	4	4650	4435	0.3	0.17
Himachal Pradesh	5469	17.78	1370	0.03	3	6460	7244	2.86	0.16
Uttar Pradesh	3685	27.14	78	0.07	6	4150	1534	7.25	0.16
Rajasthan	3322	34.69	1227	0.02	5	5540	3267	2.56	0.16

Assam	2378	47.47	531	0.03	3	3230	1013	1.52	0.15
Punjab	3992	23.26	1664	0.13	5	8490	1854	1.94	0.14
Kerala	3319	12.27	1808	0.17	3	7530	14618	2.99	0.14
Jharkhand	2988	35.63	869	0.04	6	4970	952	1.8	0.14
Madhya Pradesh	1839	39.6	896	0.02	4	3610	2189	2.17	0.12
Bihar	2770	36.58	478	0.07	3	1470	1143	1.34	0.12
Tamil Nadu	2038	14.1	1988	0.09	7	14930	4914	3.48	0.11
Sikkim	4151	14.08	1205	0.02	3	13270	1375	2.14	0.1
Mizoram	3633	26.08	252	0.01	2	3160	1718	0.6	0.1
Arunachal Pradesh	3770	22.31	332	0	2	2750	751	1.18	0.09
Manipur	2211	30.85	612	0.01	2	1270	727	0.83	0.08
Meghalaya	3736	14.75	310	0.02	5	5710	1218	0.72	0.07
Nagaland	2260	14.22	326	0.01	3	4340	1052	0.69	0.03

Worst	Medium	Best

SOURCE- NSE, AMFI, IndiaStat (2020)

1.2 STATEMENT OF THE PROBLEM:

The current study aims to construct a comprehensive financial inclusion index for all districts in Jharkhand, based on the RBI's index. This will bridge the research gap as district-level Financial Inclusion Index is not systematically compiled or published in the country at present. Previously, CRISIL used to release district-level financial inclusion indices for Indian states by taking limited number of variables, however since 2016 such data has not been available. Additionally, the study seeks to identify key factors contributing to the lower financial inclusion scores in the districts of Jharkhand, assessing the significance of district -wise variations. This holds importance, considering the latest reports from various institutions, including the government and the RBI, consistently ranking Jharkhand poorly in financial inclusion. The study will also concentrate on proposing effective measures to enhance the financial inclusion index for both districts and state.

The study will focus on preparing a financial inclusion index for all the districts of Jharkhand by incorporating different variables representing the three popular/comprehensive dimensions of the financial inclusion index as used by RBI. These dimensions represent Usage, Access and Quality

aspect of financial inclusion (RBI, 2021) [8]. These dimensions have their sub components too which are explained in the later stages of the discussion.

1.3 REVIEW OF LITERATURE

The concept of financial inclusion is multifaceted, encompassing diverse definitions and measurement approaches. It entails ensuring that individuals and communities have access to a broad range of financial services, promoting economic participation and stability. The measurement of financial inclusion varies, incorporating indicators such as access to banking services, availability of credit, and the utilization of digital financial tools. This versatility in definitions and metrics underscores the complex nature of fostering inclusive financial systems.

1.3.a. CONCEPTS AND DEFINITIONS OF FINANCIAL INCLUSION:

Claessens (2006)[9] provided a definition of financial inclusion as the "availability of a supply of reasonable quality financial services at reasonable costs, where reasonable quality and reasonable cost have to be defined relative to some objective standard, with costs reflecting all pecuniary and non-pecuniary costs."

According to **Mohan (2006)[10],** financial inclusion stands as the antithesis of financial exclusion, denoting the "lack of access by certain segments of the society to appropriate, low-cost, fair and safe financial products and services from mainstream providers." This exclusionary phenomenon, as he emphasizes, can be self-reinforcing and contribute significantly to social exclusion, particularly affecting communities with limited access to financial products, especially in rural areas.

Meanwhile, according to **Rangarajan (2008)[1]**, financial inclusion is characterized as "the process of ensuring access to financial services and adequate credit where needed by vulnerable groups such as low income groups at affordable cost."

While these initial definitions do not specify the nature of financial services involved, recent committees have started acknowledging this necessity. The committee on "Financial sector reform" by the **Planning Commission, Govt. of India (2009)[11]**, articulates that "Financial inclusion, broadly defined, refers to universal access to a wide range of financial services at a reasonable cost." This encompassing definition goes beyond banking products to include various financial services such as insurance and equity products, aligning with the evolving recognition of the multifaceted nature of financial inclusion.

United Nation (Department of Economic and Social Affairs Financing)[12] defines Financial inclusion as; “Financial inclusion is universal access, at a reasonable cost, to a wide range of financial services, provided by a variety of sound and sustainable institutions. Inclusive finance strives to enhance access to financial services for both individuals and micro-, small and medium-sized enterprises.”

The World Bank (2022)[13] which publishes its own global financial inclusion index known as Findex defines Financial inclusion as, “Financial inclusion means that individuals and businesses have access to useful and affordable financial products and services that meet their needs –

transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way."

The Reserve Bank of India[14] defines Financial inclusion as, "Financial Inclusion is the process of ensuring access to appropriate financial products and services needed by vulnerable groups such as weaker sections and low income groups at an affordable cost in a fair and transparent manner by mainstream Institutional players."

Hence we can infer that financial inclusion is the provision of equally available and affordable access to a range of financial services to all sections of people regardless of their income, age or area of residence.

1.3.b. MEASUREMENT OF FINANCIAL INCLUSION:

The **United Nations (2006)** identifies several impediments that detrimentally affect financial inclusion, including factors such as a lack of confidence in financial institutions, the presence of unsuitable products, gender bias, and insufficient financial literacy. In the Indian context, due acknowledgment has been given to these challenges, prompting concerted efforts by various stakeholders to address and overcome these barriers. Despite these endeavors, assessing the impact of these initiatives becomes crucial for determining their effectiveness and shaping future interventions. To gauge "Financial Inclusion," numerous studies have explored diverse parameters and methods for computing a Financial Inclusion Index, providing a valuable framework for evaluating progress and guiding future strategies in this critical domain.

Beck, Kunt, and Peria (2007)[15] adopt a comprehensive approach to measure financial inclusion, employing two key variables: 1) Access and Possibility of use, and 2) Actual use. Their methodology takes into account the qualitative aspect of financial services by incorporating "use" as an indicator, providing a nuanced perspective. **Honohan (2005)[16]** delves into both demand and supply considerations, proposing indicators such as Payments, Savings mobilization, Monitoring of users of funds, and Transferring Risk to assess financial inclusion comprehensively. Likewise, **The Consultative Group to Assist the Poor (C-GAP 2009)[17]** emphasizes factors like Savings and Payments, Credit, and Delivery of financial services when measuring access. **Sarma (2010)[18]** explores Penetration, Availability, and Usage as key parameters for assessing financial inclusion, while **Arora (2010)[19]** focuses on Outreach, Ease, and Cost as crucial variables in her study**. Gupte, Vekataramani, and Gupta (2012)[20]** take a multifaceted approach, considering indicators such as Penetration, Availability, Usage, Ease, and Cost. **Rahman (2013)[21]** employs four indicators—Convenient Accessibility, Take Up Rate, Responsible Usage, and Satisfaction level—to evaluate financial inclusion. **Yorulmz (2013)[22]** adopts dimensions like Access, Availability, and Usage, while Credit Rating and Information System of India Ltd. **(CRISIL) (2013)[23]** utilizes Branch penetration, Credit penetration, and Deposit penetration in developing the Financial Inclusion Index, known as Inclusix.

The NABARD Index of financial inclusion, derived from the NABARD All India Rural Financial Inclusion Survey (NAFIS) 2016-17 data**[24]**, offers a comprehensive evaluation of financial inclusion at both national and state levels. The survey, encompassing household

perspectives on savings, borrowing, investment, remittances and payments, and insurance, also delves into financial literacy and households' experiences with payment mechanisms. Calculated based on data collected at the field level, the NABFINDEX incorporates three dimensions: traditional banking products (T), modern banking services (M), and payment mechanisms (P).

In August 2021, **the RBI[25]** introduced a Financial Inclusion Index, assessing access, usage, and quality parameters with a total of 97 indicators. The study, following the United Nations Development Programme methodology, assigned weights of 35%, 45%, and 20% to access, usage, and quality dimensions, respectively. The access dimension, covering 26 indicators, highlighted efforts on the supply side, while the usage dimension, incorporating 52 indicators, focused on demand side indicators such as savings, investment, and insurance. Quality, assessed with 19 indicators, concentrated on financial literacy, consumer protection, and equality in financial infrastructure distribution. In 2021, the overall financial inclusion score was 53.3, predominantly driven by access (73.3), followed by quality (50.7) and usage (43).

Several researchers have used varying parameters to measure Financial inclusion Index. Table 4 summarizes the index of the researchers and the variables used by them to construct the financial inclusion index respectively.

TABLE - 4: Variables used in Financial Inclusion Index by various researchers

RESEARCH	VARIABLE USED
1. Beck, Kunt and Peria (2007)[15]	1. Access and possibility of use, 2. Actual use
2. Honohan (2005)[16]	1. Payments, 2. Savings mobilization. 3. Monitoring of users of funds, 4. Transforming Risk
3. The Consultative Group to Assist the Poor (2009)[17]	1. Savings, 2. Payments, 3. Credit and 4. Delivery
4. Sarma, (2010)[18]	1. Penetration, 2. Availability and 3. Usage
5. Arora, (2010)[19]	1. Outreach, 2. Ease and 3. Cost
6. Rahman ,(2013)[21]	1. Convenient Accessibility, 2. Take Up Rate, 3. Responsible Usage and 4. Satisfaction level.
7. Gupte, Vekataramani and Gupta (2012)[20]	1. Penetration, 2. Availability, 3. Usage, 4. Ease and 5. Cost.
8. Kunt , Klapper (2012)[26]	1. Formal accounts (a. the mechanics of the use, b. purpose, c. barriers d. alternatives to formal accounts e. penetration, and f. receipt of payments) 2. Savings behavior (a. use of accounts, b. use of community-based savings methods, and c. the prevalence of savings goals),

	3. Sources of borrowing, purposes of borrowing, and use of credit cards, and 4. Use of insurance products
9. Yorulmz (2013)[22]	1. Access, 2. Availability and 3. Usage
10. Credit Rating and Information System of Indian Ltd. (CRISIL) (2013)[23]	1. Branch penetration, 2. Credit penetration and 3. Deposit penetration.
11. NAFINDEX: NABARD Financial Inclusion Index[24]	1.traditional banking products (T),2. modern banking services (M), 3. payment mechanisms (P)
12. RESERVE BANK OF INDIA (2021)[25]	1.Access, 2. Usage 3. Quality

SOURCE: Compiled by me.

1.3.c. CURRENT SCENARIO OF FINANCIAL INCLUSION IN THE WORLD:

Across the globe, countries are actively pursuing the advancement of financial inclusion (FI) as a central focus in their financial policies. The United Kingdom's establishment of the "Financial Inclusion Fund" and the United States' enactment of the "Community Reinvestment Act" in 1977 stand as testament to their commitment to Financial Inclusion. Canada, in 2003, introduced "Access to Basic Banking Service Regulations" to facilitate the widespread adoption of personal bank accounts. South Africa implemented the "MZANSI" program in 2014, streamlining the process of opening low-cost, no-frill bank accounts. According to the **Global Findex database (2017)[27],** there is a notable increase in adult bank account status globally, rising from 62% in 2014 to 69% in 2017. However, a significant disparity persists in account ownership between high-income and developing countries, with high-income nations constituting 94% of accounts compared to 63% in developing countries.

Worldwide account ownership has reached 76 percent of the global population—and 71 percent of people in developing countries. The gender gap in account ownership across developing economies has fallen to 6 percentage points from 9 percentage points, where it hovered for many years. **(Global Findex Database, 2021)[28]**

1.3.d. CURRENT SCENARIO OF FINANCIAL INCLUSION IN INDIA and INDIAN STATES:

As of the fiscal year 2023, the financial inclusion index of India was 60.1, according to the Reserve Bank of India. The value of FI Index for March 2023 stands at 60.1 vis-à-vis 56.4 in March 2022, with growth witnessed across all sub-indices. Improvement in FI Index was mainly contributed by Usage and Quality dimensions, reflecting deepening of financial inclusion (**RBI,2023)[29].**

As per **Global Findex Database, 2021[28]**, in India, 78 percent of adults have an account, a share that is relatively unchanged from 2017, and 6 percentage points higher than the developing economy average of 71 percent. India has no gender gap in account ownership. Use of accounts has grown since 2017 driven by digital payments, which 35 percent of adults in India now use. However, there is still room for growth to reach the developing economy average of 57 percent digital payment adoption. There is also a significant usage gender gap of 13 percentage points between men and women using digital payments. Digitalizing payments could help promote use of accounts for the 160 million banked adults in India who still pay utility bills in cash. These and other efforts could help decrease India's share of inactive accounts, which at 35 percent is 7-times higher than the average calculated for all other developing economies.

The global impact of financial inclusion (FI) is particularly pronounced in emerging nations, where efforts are underway to integrate more individuals into the formal financial system. The overarching goal is to spur economic growth and alleviate poverty through a novel theory of poverty-eradicating economic development. **Alam Iqbal and Sami's research (2017)[30]** sheds light on India's enduring economic challenges, attributing them to a dearth of suitable, affordable, and easily accessible financial services. A robust and inclusive financial system is deemed indispensable for India to thrive and propel its economy forward. However, the road to FI success in India is extensive, as noted by **Agarwal and Panda (2018)[31],** who highlight disparities in FI levels among Indian states, with low-income states trailing behind their affluent counterparts.

Despite pockets of progress, a substantial number of states still fall within the medium inclusion category, indicating ample room for further development and inclusivity**. Raichoudhury's work (2020)[32]** underscores the pivotal role of income levels in bolstering FI efforts over time.

Recognizing the significance of FI, the Indian government has made it a priority to bring the majority of the rural population into the fold of financial inclusion. Various initiatives, including the Kisan Credit Card, Pradhan Mantri Mudra Yojana, Pradhan Mantri Jan Dhan Yojana, and Pradhan Mantri Fasal Bima Yojana, exemplify the government's commitment to expanding financial access **(Soumen and Sujit 2021)[33].** According to **Sujlana and Kiran's analysis in 2018[34],** while India has made strides in advancing FI, certain efforts remain in their early stages, indicating an ongoing commitment to enhancing financial inclusion throughout the nation.

As per the report published on **State of States by Economic Policy and Research, National Stock Exchange Pvt ltd (2020)[7]**, North-eastern states are far behind in the race. North-eastern states like Arunachal Pradesh, Mizoram and Manipur have suffered with an acute shortage of financial services. The Southern states have done highest number of e-transactions. Notably, Telangana, Andhra Pradesh and Kerala recorded 36,438, 28,805 and 14,618 transactions per thousand population. While the North-Eastern states of Manipur, Arunachal Pradesh and Tripura have seen the lowest number of transactions of 727, 751 and 855 per thousand population. Similar trend observed for digital payment as well. NCT Delhi have been the top performer in financial Inclusion race; while Nagaland placed at the bottom. Among other poor performers, Rajasthan, Manipur, Jharkhand and Assam were laggards in multiple dimensions.

1.3.e. POLICIES/SCHEMES TO PROMOTE FINANCIAL INCLUSION IN INDIA AND INDIAN STATES:

In India, achieving comprehensive financial inclusion is integral to the nation's development. Over the years, concerted efforts from successive governments, regulatory bodies, and civil society have significantly improved the state of financial inclusion. However, challenges persist in reaching the most vulnerable and impoverished communities. Despite notable progress, existing bottlenecks impede universal financial access. Addressing these challenges is crucial to realizing the untapped potential within the unbanked population and ensuring their seamless integration into the financial system.

As per **the Economic and political weekly, 2020 report on Financial inclusion and digital India: A critical assessment[35]**, The Jan Dhan-Aadhar-Mobile (JAM) Trinity, consisting of Aadhaar, PMJDY, and mobile communication, has revolutionized access to government services. With over 380 million beneficiaries under the Jan Dhan scheme as of March 2020, Aadhaar has played a pivotal role in establishing secure and easily verifiable identities, facilitating financial inclusion. The government has also introduced key initiatives like Pradhan Mantri Mudra Yojana, Stand-Up India Scheme, Pradhan Mantri Jeevan Jyoti Bima Yojana, Pradhan Mantri Suraksha Bima Yojana, and Atal Pension Yojana to promote financial inclusion and empower the underprivileged.

The Niti Aayog's 2018 "White Paper on Digital Payments – Trends, Issues, and Opportunities"[36] delves into the evolving landscape of digital payment systems in India and the latest initiatives by the Government of India. Within the realm of digital payments, the volume segment is primarily shaped by cards, PPIs (Prepaid Payment Instruments), and IMPS (Immediate Payment Service), collectively contributing to almost 50% of the total digital payment volume. On the other hand, the value segments in digital payments are predominantly influenced by RTGS (Real Time Gross Settlement) and NEFT (National Electronic Funds Transfer). This delineation emphasizes the dual dynamics of digital payment systems, with certain modes dominating in terms of volume and others in terms of overall transaction value.

1.3.f. RESEARCH GAPS IDENTIFIED

After reviewing the literature it may be concluded that there exist a notable research gap in the absence of studies focusing on financial inclusion and its various dimensions at the district level in most of the Indian states and particularly in Jharkhand. Following are some of the research gaps that have been identified:

1. Lack of District-Level studies: Existing research on financial inclusion in India, particularly in states like Jharkhand, overlooks the district-level dynamics, inhibiting a nuanced understanding of regional disparities and specific challenges.
2. Absence of Comprehensive Indices: Despite the importance of financial inclusion, Jharkhand lacks a tailored Financial Inclusion Index (FII) to assess the status and progress of inclusion efforts across its 24 districts, hindering effective policymaking and resource allocation.

3. Need for Comparative Analyses: The scarcity of comparative studies at the district level further obscures regional variations in financial inclusion within Jharkhand, making it difficult to identify effective strategies and target interventions where they are most needed.
4. Limited Exploration of Dimensions: The lack of specific studies addressing the various dimensions of financial inclusion at the district level in Jharkhand impedes a comprehensive understanding of factors such as access, credit availability, and financial literacy, crucial for designing targeted interventions.
5. Opportunity for Innovative Research: By addressing these gaps through innovative approaches like secondary data analysis and FII construction, researchers can provide valuable insights into the intricacies of financial inclusion disparities in Jharkhand, informing evidence-based policies and interventions.

This study will involve a thorough exploration through secondary data analysis and the formulation of a Financial Inclusion index (FII). In this way, this research will seek to contribute valuable insights to the existing knowledge base on financial inclusion, especially in the context of Jharkhand.

2. OBJECTIVES OF INVESTIGATION

A comprehensive study of the financial inclusion at the district level in Jharkhand is the broad objective of this study. However, the specific objectives which this study will aim to achieve in order to accomplish the final objectives are as follows:

1. To investigate the intricacies of financial inclusion and explore pertinent financial inclusion indices.
2. To extend the scope of the study to encompass the diverse districts of Jharkhand.
3. To systematically rank the districts of Jharkhand as per their respective financial inclusion index based on RBI's parameters.
4. To scrutinize the underlying reasons contributing to variations in the financial inclusion index among distinct districts.
5. To propose strategic measures aimed at enhancing the financial inclusion index across the districts, fostering a more inclusive and equitable financial landscape.

3. RESEARCH QUESTIONS AND RESEARCH HYPOTHESES:

3.a. RESEARCH QUESTIONS

In order to fulfil the above stated objectives the study will seek to answer the following questions-

1. What is Financial Inclusion and what are the different methods to measure it?
2. What is the current status of financial inclusion in Indian states and Jharkhand?

3. Is there variation in the usage, access and quality of the financial services in the different districts of Jharkhand?
4. Is there any variation in the ranking of districts based on the financial inclusion index?
5. How does the density and distribution of banking infrastructure relates to the district-wise financial inclusion, and what strategies can be employed to address disparities in physical access to financial services?
6. Are there specific interventions or programs in certain districts that have significantly influenced financial inclusion, and can these be replicated or adapted in other regions?
7. What lessons can be drawn from the districts that have successfully improved their financial inclusion indices and how can these insights guide policy recommendations for districts facing similar challenges?

3.b. RESEARCH HYPOTHESES

Hypothesis 1. Inter – districts variability in Financial Inclusion

Null Hypothesis (H_0) – There is no inter – district variability in district-wise financial inclusion within Jharkhand.

Alternative Hypothesis (H_1) – There is a inter – district variability in district-wise financial inclusion within Jharkhand, contributing to disparities in economic development.

Hypothesis 2: Correlation with Socio- Economic Indicators.

2.a Null Hypothesis (H_0) – Districts with higher financial inclusion indices do not exhibit positive correlations with socio-economic indicators such as per capita income.

Alternate Hypothesis (H_1) – Districts wise higher financial inclusion indices exhibit negative correlations with socio-economic indicators such as per capita income.

2.b Null Hypothesis (H_0) – Districts with higher financial inclusion indices do not exhibit positive correlations with socio-economic indicators such as literacy rates.

Alternate Hypothesis (H_1) – Districts wise higher financial inclusion indices exhibit negative correlations with socio-economic indicators such as literacy rates.

2.c Null Hypothesis (H_0) – Districts with higher financial inclusion indices do not exhibit positive correlations with socio-economic indicators such as employment levels.

Alternate Hypothesis (H_1) – Districts wise higher financial inclusion indices exhibit negative correlations with socio-economic indicators such as employment levels.

Hypothesis 3: Correlation with banking infrastructures/facilities (measured in terms of banking penetration)

Null Hypothesis (H_0) – Districts with better banking penetration (higher bank to man ratio) do not exhibit higher financial inclusion.

Alternative Hypothesis (H_1) – Districts with better banking penetration exhibit higher financial inclusion indices.

4. RESEARCH DESIGN AND METHODOLOGY

4.1 TYPE OF RESEARCH

This research study is a secondary study as it will primarily use the secondary data. Thus the present study will use the combined approach that integrates both exploratory and explanatory methodologies. Initially, it engages in exploratory endeavors to delve into the multifaceted dimensions of financial inclusion, examining factors such as the accessibility of banking infrastructure, socio-economic indicators, and other factors. This phase aims to illuminate the landscape of financial inclusion, particularly in a region where comprehensive studies are scant. Subsequently, the research transitions to an explanatory stance, seeking to elucidate the underlying causal mechanisms driving observed patterns of financial inclusivity across districts. Through rigorous data analysis , the study endeavors to uncover the rationale behind divergent levels of financial inclusion, providing valuable insights into the dynamics shaping financial access and utilization in the diverse districts of Jharkhand.

4.2 DATA AND DATA SOURCES

This research study relies predominantly on secondary data sources to comprehensively examine the financial inclusion scenario in Jharkhand and its districts. Leveraging existing datasets and information is essential for this applied and empirical research, as it enables a thorough analysis of historical trends, patterns, and key indicators related to financial inclusion. A diverse range of sources will be explored, including government reports, financial institution publications, academic studies, and relevant databases. Government reports, such as those from the Reserve Bank of India (RBI) and the Ministry of Finance, provide comprehensive data on financial inclusion policies and initiatives.

Additionally, accessing databases like the World Bank's Global Findex data can provide valuable quantitative information. Most of the district level data is published by State Level Banker's Committee (SLBC). Other sources will be Economic survey, Jharkhand; reports of NABARD; reports published by Economic and political weekly research foundation (EPWRF) etc. Many more sources may be added as per the requirement as the research will proceed. By drawing on a rich tapestry of secondary data sources, this research aims to offer a nuanced understanding of the financial inclusion landscape in Jharkhand.

The proposed research work will be based on secondary sources. So the various sources used to access and analyse the data will be:

1. **Literature Review:** A thorough examination of academic journals, books, articles, and other written sources to compile pertinent information.
2. **Government Reports:** Retrieval of reports published by government agencies, including the Reserve Bank of India (RBI), Ministry of Finance, and other relevant departments.

3. **Financial Institution Publications:** Scrutiny of reports, publications, and data released by financial institutions, banks, and other pertinent organizations.
4. **Surveys and Databases:** Utilization of surveys conducted by research organizations and access to databases such as the World Bank's Global Findex, National Sample Survey (NSS), and other statistical repositories.
5. **Academic Studies:** Analysis of research studies and papers published by scholars and researchers focusing on financial inclusion in the region.
6. **News and Media Sources:** Extraction of information from news articles, press releases, and media reports offering insights into current events and developments related to financial inclusion.
7. **Online Resources:** Exploration of online platforms, repositories, and websites hosting relevant datasets and reports.

All these tools will be used as per the requirement to collect the data.

4.4 SELECTION OF VARIABLES (DEPENDENT/ INDEPENDENT)

In crafting a Financial Inclusion Index to measure the dynamics in Jharkhand's districts, strategic selection of dependent and independent variables is paramount. The overarching objective is to develop a comprehensive metric encompassing the dimensions of access, usage, and quality. Within each of these dimensions, there will be various sub-components. Within the dimension of "access," sub-components such as banking infrastructure, proximity to financial services, and availability of digital platforms will be scrutinized. The "usage" dimension will delve into factors like account activity, digital transaction frequency, and participation in formal financial systems. Simultaneously, the "quality" dimension will explore the effectiveness of financial education initiatives, reliability of services, and customer satisfaction. These sub-components serve as independent variables, influencing the dependent variable—the Financial Inclusion Index. By meticulously choosing and defining these variables, the index aims to provide a nuanced and holistic assessment of the financial inclusion scenario across Jharkhand's districts, fostering informed policy decisions and targeted interventions.

Following are the details of the variables and their relationships:

Financial Inclusion Index (FII_i) - Dependent Variable

The Independent variables are X_U - Usage, X_A - Access , X_Q – Quality

TABLE - 5: Table representing dependent variable and independent variable in the Financial inclusion index.

Dependent Variable (Y)	Independent Variable (X)
Financial Inclusion Index (FII_i)	1. X_U - Usage
	2. X_A - Access

	3. X_Q – Quality

Source: Compiled by me.

TABLE - 6: Table representing the sub- components of the various dimension of FII.

Dimensions	Sub- components
1. X_U - Usage	Physical point of Service: • No. of banking outlets per 100,000 adults (SCBs) • No. of ATMs per 100,000 adults • Number of Business Correspondent per 100,000 adults • Number of NBFC-MFIs per 100,000 adults • Number of post offices per 100000 adults
2. X_A - Access	• Formally banked adult – (Percentage of adult with saving banks account) • Adult with credit product – (Percentage of adult having credit products from banks) • Adult with Life insurance – (Percentage of adult having a life insurance product) • Adult with pension – (Percentage of adult having a pension policy)
3. X_Q – Quality	• Financial Literacy camp - District-wise Number of Financial Literacy Camps (FLC) organized • Financial literacy - District-wise Number of beneficiaries who joined the FLC.

Source: Compiled by me.

The Financial Inclusion Index (FII) of districts is constructed as the linear combination of its components as**:** $\mathbf{FII_i = X_U + X_A + X_Q}$

Access - reflects the efforts made on the supply side of financial inclusion, such as availability of physical and digital infrastructure and measures for making basic products and services available for the excluded segments.

Usage - It is more of a demand side measure and reflects the extent of active usage of financial infrastructure by way of savings, investment, insurance, availing of credit and remittance facilities, etc. The indicators are designed to reflect savings and investment habits, availment of credit from banks and non-banks, use of retail digital payments, penetration of insurance both life and non-life, and contribution to various pension schemes.

Quality - This indicator capture the efforts undertaken by the stakeholders to make citizens aware of the appropriate financial services available, safe ways of using them, and making them aware of their rights such as to overcome the psychological barriers.

As the study will be based on secondary data, it will encompass the entirety of Jharkhand, including all 24 districts, as its sample size. This holistic approach aims to provide a comprehensive and representative understanding of the financial inclusion scenario across the diverse regions of the state. By including every district in the sample, the research endeavors to capture a complete picture, fostering robust insights and facilitating a thorough evaluation of financial inclusion dynamics throughout Jharkhand.

5. DATA ANALYSIS:

The process of data analysis will have multiple steps since the present study aims to prepare the financial inclusion index for the districts of Jharkhand, so the data analysis will first start with the construction of financial inclusion index.

5.a : CONSTRUCTION OF AN INDEX

To construct an Index, following steps are to be followed. Here the steps are discussed for the construction of a financial inclusion index.

Step 1. Selection of indicators or variables

Various indicators which captures different dimensions of financial inclusions are to be selected. These may include access to banking services, usage of digital payments etc.

Each of the selected indicator is required to be normalised to bring them on the same scale. So, each indicator is compared to its desired level/optimum level before combining. When this task is done then only the Financial Inclusion as proxied by the indicator is presumed to be complete.

Step 2. Setting the desired or target level of the indicators.

These target level of the indicator will reflect the ideal level/state of the financial inclusion.

Step 3. Assigning weights to the indicators

Different indicators may not have equal significance towards the financial inclusion goal. Hence, proper weights are to be assigned to the indicators. The Reserve Bank of India uses three dimensions of Access, Usage and Quality and assigns the weights of 35, 45 and 20 per cent

respectively. This research study will use the same weight for its own indicators of Access, Usage and Quality as used by RBI.

Step 4. Calculating the indicator Indices

To calculate the indicator indices, we will multiply the normalised value of each of the indicators to their assigned weights.

For example; if the access to banking services has a value of 0.7 and a weight of 0.35, the value of the access index would be 0.7 *0.35 = 0.24

Step 5. Aggregating the indicator indices

Finally we will combine the indices of all the dimensions into a single composite index and normalise the index into a scale of 0 to 100.

For constructing a composite financial inclusion index, many researchers have adopted the methodology adopted by United Nation Development Programme (UNDP) in constructing the Human Development Index (HDI) or Human Poverty Index (HPI). Sarma (2008)[37], Sarma(2012) has used the similar methodology which is also adopted by RBI. This research study will adopt the same methodology adopted by Sarma (2012) and RBI in construction of the Financial Inclusion Index.

5.b CONSTRUCTION OF FINANCIAL INCLUSION INDEX

The steps involved and the formulae used are discussed below:

Step 1. Normalisation of the selected indicators

All the selected indicators /variables are normalised with respect to the case when no financial services were available. Hence the Financial inclusion index has no base year.

$$\textbf{Ni (Normalised value)} = \frac{Yi - \textit{State when no financial services were available}}{\textit{Desired Goal}\ (ti)} \quad \text{---------- (1)}$$

$$N_i = \frac{Y_i - 0}{t_i} \quad \text{---------- (2)}$$

Where, Yi – i^{th} indicator and i = 1, 2, 3...k

wi – weights associated to the i^{th} indicator

ti – desired goal or target set for the i^{th} indicator

Ni – Normalised value of the i^{th} indicator

OR

$$N_i = \frac{A_i - m_i}{M_i - m_i} \quad \text{---------- (3)}$$

Where,

• Ai, represents the actual value of dimension i.

• mi, represents the minimum value of dimension i.

• Mi represents the maximum value of dimension i.

Step 2. Calculating the indicator indices

To compute the indices for each dimension/ indicator of financial inclusion, we multiply the normalised value of each indicator with its weights assigned using the formula given below:

$$d_i = w_i * \left[\frac{A_i - m_i}{M_i - m_i}\right] \quad \text{----------(4)}$$

Where, di – the index/ indicator value for the dimension i

wi – weight assigned to each indicator

Step3. The last step is to compute the FII using the following formulae:

$$X_1 = \frac{\sqrt{d_1^2 + d_2^2 + d_3^2 + \cdots + d_n^2}}{\sqrt{w_1^2 + w_2^2 + w_3^2 + \cdots + w_n^2}} \quad \text{----------(5)}$$

$$X_2 = 1 - \frac{\sqrt{(w_1 - d_1)^2 + (w_2 - d_2)^2 + \ldots + (w_n - d_n)^2}}{\sqrt{w_1^2 + w_2^2 + w_3^2 + \cdots + w_n^2}} \quad \text{----------(6)}$$

Equation (5) is based on the notion of distance of the achieved point (X = d_1, d_2, d_3) from the worst point (O = 0,0,0) and the ideal situation (W = w_1 , w_2, w_3). This equation provides normalised Euclidean distance between the achievement position X and the worst position O in the nth dimensional space. Equation 6 provides the inverse Euclidean distance between the achievement position X and the ideal situation W. Both the distances are normalised to position them between 0 and 1(Omar and Inaba, 2020)[38].

Finally the Financial inclusion Index (FII) is calculated by taking the simple average of equation (5) and (6).

$$FII = \frac{1}{2}\left[X_1 + X_2\right]$$

FII is a number that lies between 0 and 1.

Based on previously based studies (Sarma, 2008; Sethy &Goyari, 2018[39]; Yadav et al., 2020[40]), the final FII values were categorized as follows:

• If FII falls under 0.5 < FII ≤1, then it represents high financial inclusion district.

• If FII falls under $0.3 \leq FII < 0.5$, then it represents medium financial inclusion district.

• If FII falls under $0 \leq FII < 0.3$, then it represents low financial inclusion district.

In this research study, we propose to use the above mentioned methodology which is also used by RBI in the construction of its financial inclusion index. However, if required, we may also use two staged Principal Component Analysis (PCA) method and the steps of that method is discussed below:

5.c CONSTRUCTION OF AN INDEX USING PRINCIPAL COMPONENT ANALYSIS (PCA)

The first stage : Estimate the three sub- indices of the Financial inclusion index : Access, Usage and Quality.

$$X_i^U = \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + u_i$$

$$X_i^A = \theta_1 y_1 + \theta_2 y_2 + \theta_3 y_3 + \theta_4 y_4 + \varepsilon_i$$

$$X_i^Q = \lambda_1 z_1 + \lambda_2 z_2 + v_i$$

Where $x_1 - \ No. of\ banking\ outlets\ per\ 100{,}000\ adults\ (SCBs)$,

x_2 - No. of ATMs per 100,000 adults

x_3 −Number of Business Correspondent per 100,000 adults

x_4 −Number of NBFC-MFIs per 100,000 adults

x_5 −Number of post offices per 100000 adults

Where y_1 − Formally banked adult – (Percentage of adult with saving banks account),

y_2 −Adult with credit product (Percentage of adult having credit products from banks)

y_3 −Adult with Life insurance – (Percentage of adult having a life insurance product)

y_4 −Adult with pension – (Percentage of adult having a pension policy)

Where z_1 −Financial Literacy camp - District-wise Number of Financial Literacy Camps (FLC) organized

z_2 − Financial literacy - District-wise Number of beneficiaries who joined the FLC.

The second stage : Estimate the weights of the dimensions and the overall financial inclusion index by using the dimensions as explanatory variables.(Camara and Tuesta, 2014)[41]

$$FII_i = w_1 X_i^U + w_2 X_i^A + w_3 X_i^Q + e_i$$

5.d. TOOLS OF DATA ANALYSIS:

The present research work will develop a financial inclusion index to study the district level variation in financial inclusion in the state of Jharkhand. In this process, both Descriptive Statistics and Inferential Statistics will be used in data analysis and interpretation. A section wise details of the use of descriptive and inferential statistics are given in the Log frame (Appendix 1). However, a summary of the important statistics which will be used to analyse the results of the study are given in the following paragraph.

DESCRIPTIVE STATISTICS: To understand the absolute and relative positioning of districts in terms of financial inclusion, Descriptive statistical tools such as Mean value, and Mean difference will be used and to further understand the district wise variation in financial inclusion, the study will make use of statistical tools such as Range and the Coefficient of Standard Deviation.

INFERENTIAL STATISTICS: The study will also make use of Inferential Statistics to understand the significance of variation of financial inclusion indices of different districts of Jharkhand. Here, Chi square test, Pearson correlation, t-test or z-test will be used for the purpose of hypothesis testing. Here, the study will mainly make use of Chi square test and the Pearson correlation test. However, t- test and z-test will also be used for the similar purposes keeping in mind the feasibility of data. The Chi square test will help us to understand the association between the variables of this study. It will help to know if the independent variable is creating an impact on the dependent variable or not. Similarly, Pearson Correlation coefficient will help to assess the strength and direction between the variables. Pearson correlation coefficient will also help to assess the linear relationships between continuous variables. Also, t –test will help to compare the means of the two groups to determine if there is a significant difference between them. The t- test could be used to compare the mean per capita income between districts with higher and lower financial inclusion indices. Since t-test and z-test require prior knowledge of sample/population mean and variance, so the study will make use of these tests in those places where the data set fulfils the criteria of applying these tests.

6. SIGNIFICANCE OF THE STUDY

In Jharkhand's journey towards progress, this study highlights the crucial role of financial inclusion in driving positive change, especially in areas striving for development. Following are some of the points which indicate the significance of this study:

1. **Timely Response to a Socioeconomic Issue:** The proposed study addresses a pressing issue within Jharkhand's socioeconomic landscape, particularly relevant as 19 out of 24 districts are classified as aspirational. These districts are part of a government initiative aimed at uplifting them to the standards of other districts.
2. **Role of Financial Inclusion in Development:** Given the government's efforts to bridge developmental gaps, understanding and enhancing financial inclusion is crucial. Financial inclusion can play a pivotal role in catalyzing progress, especially in aspirational districts where developmental disparities are pronounced.

3. **Urgency Highlighted by Poor Rankings:** Jharkhand's recurrent lower rankings on financial inclusion indices highlight the urgency of this research. As financial inclusion is integral to economic growth, understanding the factors contributing to poor performance is essential, particularly in the context of ongoing efforts to uplift aspirational districts.
4. **Alignment with National Development Goals**: The study aligns with the broader national goal of inclusive development and economic parity across regions. By addressing financial inclusion challenges in Jharkhand, the research contributes not only to academic knowledge but also provides practical insights for policymaking aimed at enhancing the overall well-being and progress of the state.
5. **Need for Strategic Interventions**: There is a clear and compelling need for this study to pave the way for strategic interventions and improvements in Jharkhand's financial inclusion landscape. By identifying key challenges and opportunities, the research can inform targeted policies and initiatives to drive inclusive growth and development.

7. CONTRIBUTION TO THE EXISTING KNOWLEDGE/ SCOPE FOR FUTURE STUDY

The proposed study is poised to make significant contributions to future research, interventions, and policymaking in several key ways.

Firstly, by generating a district-level financial inclusion index for Jharkhand, it establishes a valuable baseline for future comparative analyses and benchmarking. This foundational dataset can serve as a reference point for scholars and policymakers, facilitating a nuanced understanding of the evolving financial inclusion landscape.

Secondly, the identification of factors influencing lower financial inclusion scores in the districts of Jharkhand will offer targeted insights for future research endeavors. This understanding can form the basis for more in-depth studies, exploring the dynamics between financial inclusion and various socio-economic variables. Such nuanced research can inform the development of tailored interventions and policies that address the specific challenges faced by Jharkhand, setting a precedent for other regions grappling with similar issues.

Thirdly, as the study delves into measures to improve the financial inclusion index, it provides a practical roadmap for intervention strategies. Policymakers can leverage these insights to design and implement initiatives that are not only effective but also attuned to the unique context of Jharkhand. This research could influence the formulation of evidence-based policies, steering the state towards a more inclusive and sustainable economic trajectory.

Fourthly, in the broader research landscape, the findings of this study may also contribute to the development of a replicable framework for assessing financial inclusion in diverse regions. This could be instrumental in shaping national and international strategies for inclusive economic growth, ultimately fostering a more equitable and resilient financial ecosystem. Overall, the proposed study is poised to be a catalyst for future research, intervention strategies, and policymaking that aim to transform the financial inclusion landscape in Jharkhand and beyond.

Fifthly, there will always exist a scope for future work on this study in terms of incorporation of more numbers of variables in the sub-dimension of the Financial Inclusion index because the present study has captured only a limited number of variables.

8. CHAPTERIZATION

Chapter 1: Introduction

This chapter will provide a comprehensive backdrop to the financial inclusion landscape in Jharkhand. It will delve into the contextual nuances, presenting the problem statement, the specific objectives of the study, and elucidate the broader significance of the research in addressing contemporary challenges.

Chapter 2: Literature Review

A thorough examination of existing literature on global and national financial inclusion will be undertaken in this chapter. The study will review prior research on financial inclusion in India and Jharkhand, aiming to identify gaps and establish the need for the current investigation.

Chapter 3: Research Methodology

This chapter will meticulously detail the methodology adopted for the research. From elucidating the chosen data collection methods and explaining the rationale behind sample selection to articulating the process of constructing the district-level financial inclusion index, this chapter will provide a comprehensive understanding of the research approach.

Chapter 4: District-Level Financial Inclusion Index

The focus of this chapter will be the formulation and presentation of the district-level financial inclusion index for Jharkhand. It will include the intricacies of the index construction, offering a nuanced interpretation of the scores for each district. Comparative analyses with historical data, if available, will also be explored.

Chapter 5: Factors Influencing Financial Inclusion in Jharkhand

This chapter will scrutinize the factors that exert influence on financial inclusion in Jharkhand. Through a comprehensive analysis, it will attempt to unravel the intricate relationships between socio-economic variables and financial inclusion, drawing comparisons between high and low-performing districts.

Chapter 6: District-Wise Variations and Significance

An exploration of variations in financial inclusion scores across districts will be presented in this chapter. Statistical analyses will be employed to determine the significance of these variations, offering insights into the implications for regional development and the formulation of targeted policies.

Chapter 7: Challenges and Opportunities

This chapter will delve into the challenges impeding financial inclusion in Jharkhand, simultaneously identifying opportunities for improvement. Special attention will be given to the role of aspirational districts in the financial inclusion landscape.

Chapter 8: Measures for Improving Financial Inclusion

Proposed interventions and policy recommendations will be the focal point of this chapter. Drawing lessons from successful initiatives elsewhere, this chapter will outline strategies for addressing specific challenges identified in Jharkhand.

Chapter 9: Case Studies (if applicable)

In-depth case studies of specific districts or regions will be presented in this chapter, providing practical insights derived from real-world scenarios.

Chapter 10: Conclusion

This conclusive chapter will summarize the key findings of the study, highlighting its contributions to academic research and policymaking. Recommendations for future research and interventions will be outlined.

Bibliography

The thesis will conclude with a comprehensive list of citations for all sources and studies referenced throughout the research.

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Appendix 1: LOG FRAME OF OBJECTIVES, RESEARCH QUESTIONS AND HYPOTHESIS:

OBJECTIVES	RESEARCH QUESTIONS	HYPOTHESES	VARIABLES ON WHICH DATA ARE COLLECTED	DATA ANALYSIS		TEST OF SIGNIFICANCE	SIGNIFICANT /NOT SIGNIFICANT
1.To investigate the intricacies of financial inclusion and explore pertinent financial inclusion indices.	1.What is Financial Inclusion and what are the different methods to measure it?		1.No. of banking outlets per 100,000 adults (SCBs) 2.No. of ATMs per 100,000 adults 3.Number of Business Correspondent per 100,000 adults 4.Number of NBFC-MFIs per 100,000 adults 5.Number of post offices	<u>Descriptive analysis</u> Percentage, Table, Graph, Mean, Standard Deviation, Coefficient of Variation.	<u>Inferential Analysis</u>		

			per 100000 adults 6.Formally banked adult – (Percentage of adult with saving banks account) 7.Adult with credit product – (Percentage of adult having credit products from banks) 8.Adult with Life insurance – (Percentage of adult having a life insurance product) 9.Adult with pension – (Percentage of adult				

			having a pension policy) 10.Financial Literacy camp - District-wise Number of Financial Literacy Camps (FLC) organized 11.District-wise Number of beneficiaries who joined the FLC.				
2.To extend the scope of the study to encompass the diverse districts of Jharkhand	2.What is the current status of financial inclusion in Indian states and Jharkhand? 3.Is there variation in the usage, access and			Percentage, Table, Graph, Mean, Standard Deviation, Coefficient of Variation,			

	quality of the financial services in the different districts of Jharkhand?						
3.To systematically rank the districts of Jharkhand as per their respective financial inclusion index based on RBI's parameters.	3.Is there variation in the usage, access and quality of the financial services in the different districts of Jharkhand? 4.Is there any variation in the ranking of districts based on the financial inclusion index?			Percentage, Table, Graph, Mean, Standard Deviation, Coefficient of Variation,	Multiple Linear Regression Model		
4.To scrutinize the underlying reasons contributing to variations in the financial inclusion index among distinct	3.Is there variation in the usage, access and quality of the financial services in the different districts of Jharkhand? 5.How does the	Hypothesis 1. Inter-district Variability in Financial Inclusion Null Hypothesis (H_0) – There is no Inter- district variability in district-wise financial inclusion		Percentage, Table, Graph, Mean, Standard Deviation, Coefficient of Variation, correlation	Correlation (Pearson correlation coefficient) z- test, t-test, Chi-square test	The critical level of significance will be set at 5% (0.05). If the critical level or level of significant is less than 5% or 0.05, null hypothesis is rejected. P value has been	$\infty = 0.05$

districts.	density and distribution of banking infrastructure relates to the district-wise financial inclusion, and what strategies can be employed to address disparities in physical access to financial services?	within Jharkhand. Alternative Hypothesis (H_1) – There is a Inter-district variability in district-wise financial inclusion within Jharkhand, contributing to disparities in economic development. Hypothesis 2: Correlation with Socio- Economic Indicators. **2.a** Null Hypothesis (H_0) – Districts with higher financial inclusion indices do not exhibit positive correlations with socio-economic indicators such as per capita income. Alternate Hypothesis (H_1) – Districts wise higher financial inclusion indices				used If $P < \infty$ If $P > \infty$ Comparison between Cal value of test statistics and table or critical value If Cal value > table value If Cal value < table value	Significant Not Significant Significant Not Significant

		exhibit negative correlations with socio-economic indicators such as per capita income. **2.b** Null Hypothesis (H_0) – Districts with higher financial inclusion indices do not exhibit positive correlations with socio-economic indicators such as literacy rates. Alternate Hypothesis (H_1) – Districts wise higher financial inclusion indices exhibit negative correlations with socio-economic indicators such as literacy rates. **2.c** Null Hypothesis (H_0) – Districts with higher financial inclusion indices do not exhibit positive correlations with socio-economic					

		indicators such as employment levels. Alternate Hypothesis (H_1) – Districts wise higher financial inclusion indices exhibit negative correlations with socio-economic indicators such as employment levels. Hypothesis 3: Correlation with banking infrastructures/facilities (measured in terms of banking penetration) Null Hypothesis (H_0) – Districts with better banking penetration (higher bank to man ratio) do not exhibit higher financial inclusion. Alternative Hypothesis (H_1) – Districts with better banking penetration exhibit higher					

		financial inclusion indices.					
5.To propose strategic measures aimed at enhancing the financial inclusion index across the districts, fostering a more inclusive and equitable financial landscape.	6.Are there specific interventions or programs in certain districts that have significantly influenced financial inclusion, and can these be replicated or adapted in other regions? 7. What lessons can be drawn from the districts that have successfully improved their financial inclusion indices and how can these insights guide policy recommendations for districts facing similar			Percentage, Table, Graph, Mean, Standard Deviation, Coefficient of Variation, correlation			

	challenges?						